ENERGY STAR and Instantly Available PCs

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Overview

"In the future, computers will weigh less than 1.5 tons." Popular Mechanics, 1949.

This was almost an understatement 50 years ago, and it told only half the story: thanks to advanced technologies, computers have not only shed a few pounds, they've become a ubiquitous part of life on this planet. And given their proliferation—100+ million PCs in the U.S. alone—computers are also having an effect on the environment.

To address this issue, the EPA launched ENERGY STAR (E*), a voluntary partnership with equipment manufacturers across several industries. Equipment with the ENERGY STAR label reduces power consumption and the pollution associated with the use of electricity by powering down and going to sleep during periods of inactivity.

Since demonstrating the first ENERGY STAR-qualified PC in 1994, Intel has continued to develop advanced power management technologies. The latest of these, Instantly Available (IAPC), is a group of technologies that will be used to build the next generation of deeply power-managed PCs.

Through better, advanced technologies like IAPC, Intel is making computers not only smarter and faster, but also more economical and more environmentally friendly.

Conserves Energy

Energy use by office equipment is one of the fastest-growing sources of electricity consumption in businesses and homes. It currently accounts for more than seven percent of total commercial sector electricity use. Much of this energy is wasted because office equipment sits idle for long periods. During the average workday, PCs are actively used for only about 4 hours, with another 5.5 hours being idle time. In some environments, PCs are left on 24 hours a day, creating even more downtime and added energy use.

To tackle this problem, the EPA launched ENERGY STAR, a voluntary partnership with office equipment manufacturers and other manufacturers across several industries. The ENERGY STAR label identifies energy efficient products that save money by eliminating wasted energy.

Reduces Pollution

Office equipment with the ENERGY STAR label saves energy by powering down and going to sleep during periods of inactivity, but still offers all the performance features of standard equipment. On a monthly or annual basis, this equipment uses about *half* as much energy as standard equipment, saving its owners millions of dollars in electricity costs. The EPA is interested in power management for another important reason: in office equipment, power management offers huge potential for dramatically cutting air pollution associated with electricity use.

IAPC Benefits Users/Environment

Since demonstrating the first ENERGY STAR qualified PC in 1994, Intel has continued to develop advanced power management technologies that reduce total PC power consumption. Traditional PC power management techniques, while broadly successful, do not address user requirements: resume times are not acceptable, network connections are often broken, and systems are noisy when asleep. And while power management is a feature of many PCs, many have had their power management functions disabled. Intel's current efforts are aimed at making power management both easy to use and environmentally effective.

Instantly Available (IAPC) is Intel's term to describe a group of technologies that will be used to build the next generation of deeply power managed PCs. These PCs can power down into a very deep sleep state, and yet wake up

fully within five seconds while still retaining the capability to respond to external or user-programmed events. IAPC is an open, license-free architecture based on open industry standards.

IAPC technology offers major benefits for both business and home users:
Maximizes energy cost savings and reduces total cost of ownership for business owners.
According to EPA estimates, a medium-sized business with 1,000 PCs would save $171,000 (US) per year by deploying PCs with this technology instead of PCs without power management capabilities.

Enables powerful management tools that can remotely wake up PCs at night and update software *configurations.* Employees experience no interruptions; support is easier for IT managers.

Enables out-of-hours data/information gathering, keeping workers better informed and more *productive.* IAPC allows PCs to host personal web pages, share data, run smart software agents, and analyze data, all before going back to sleep.

Provides new applications for home PCs, including home networking and messaging. Virtually eliminates the "boot" process, waking up instantly and returning to any previous activities. For home users, PCs are always connected and immediately available.

IAPC Far Exceeds New E*

The EPA has revised current computer specifications, making them more stringent for two reasons: to encourage additional improvement in power management, and to pursue greater pollution reduction goals.

Knowing that many products on the market are already compliant and that better power management technologies were becoming available, the EPA believed the time was appropriate to raise ENERGY STAR standards. For higher end workstations, a different set of power specifications will apply, based on power supply size. These systems typically use more power than others on the market; thus, the new specifications encourage their use of power management as well.

Instantly Available actually exceeds new ENERGY STAR specifications for computers. The EPA's new specifications, which become effective July 1, 2000, reduce the sleep level from 30 watts/sleep mode to 15 watts/sleep mode for most standard computers. With IAPC technology, PC manufacturers can design products that go to sleep and consume less than 5 watts—*a sixfold improvement over sleep states required by ENERGY STAR.* IAPC technology allows even greater energy, cost, and pollution savings.

EPA View on Benefits

From an EPA perspective, Intel's technology advancements can offer tremendous environmental benefits. First, Instantly Available technologies will contribute to reduced global energy consumption. According to EPA estimates, PCs with Intel's IAPC technology would consume 63 percent less energy per year than non power managed PCs, saving the U.S. alone *$9 billion* in energy costs over the next 10 years. Furthermore, these advancements will help reduce the air pollution that contributes to global warming and other health and environmental problems. Instantly Available technologies have the potential to reduce thousands of tons of carbon dioxide pollution annually, equivalent to removing 18 million cars from the road each year.

Because IAPC technology is so easy to use it will encourage wider adoption of power management. With Instantly Available, users will be less likely to disable power management features. The EPA hopes that this "ease of use," as Intel calls it, will help increase power management compliance and enabling rates, leading to less power consumption overall. Even when PC users leave their computers running, more efficient equipment will permit both energy and pollution savings.

More Performance

The key feature of Intel's technology*: it achieves sleep state power consumption with no compromise to system performance or usage.* In fact, IAPC adds capabilities to PCs. The technology removes any conflict between the network and reducing energy costs. That alone makes power management more attractive and ultimately more widely used.

Consumer Awareness

Since launch of ENERGY STAR Office Equipment, the EPA has worked consistently to educate OEMs, end users, and consumers about the benefits of power management. It hasn't been easy. The EPA knew as many as 50 percent of all qualified PCs in business use have their power management disabled. Now, the technology is there to make those features seamless and easy to deploy. OEMs like Dell Computer, Compaq Computer, IBM, Inc., Ricoh Corp., and Canon USA, Inc. have supported EPA initiatives and have worked to educate end users, dealers, and the public. For a list of all ENERGY STAR Office Equipment partners, visit the ENERGY STAR Web site.

Consumer electronics like TVs and VCRs have a similar power management problem: they waste energy in stand-by mode, when we think they are actually turned off. Interestingly, this market segment views power consumption as an issue; it has captured the attention of consumers and the media alike. ENERGY STAR partners like Panasonic (Matsushita Electric Corporation of America), Sony Corporation of America, Aiwa America Inc., Sharp Electronics Corporation, Toshiba America Inc., and Memorex are taking advantage of their products' energy efficiency to gain a market advantage over other manufacturers who do not incorporate energy saving features. These partners, like Intel, set themselves apart from others in industry through their commitment to the design, manufacture, and marketing of environmentally responsible products and technologies.

Summary

Office equipment is one of the fastest-growing sources of electricity consumption in businesses and homes. PCs, which are actively used for only a fraction of the time they're turned on, account for vast amounts of wasted electricity. This idle time is expensive not only for the owners of these PCs but also for the environment, due to the air pollution associated with the use of electricity.

To address this problem, the EPA launched ENERGY STAR, a voluntary partnership with manufacturers across several industries. Office equipment with the ENERGY STAR label saves energy by powering down and going to sleep during periods of inactivity, but still offers all the performance features of standard equipment.

Intel's Instantly Available (IAPC), a license-free architecture based on open industry standards, exceeds the EPA's new ENERGY STAR specifications for PCs, which become effective July 1, 2000. From an EPA perspective, Intel's technology advancements can offer tremendous energy savings. Because IAPC technology is so easy to use, it will also encourage wider adoption of power management. What's more, IAPC opens the way to new applications.

EPA hopes that developers not only continue to improve power management technologies, but that they also strive to use it in their own business environments.

More Info

Information about Instantly Available technology and Power Management can be found at the Instantly Available Technology Web site. For more information on ENERGY STAR, go to the ENERGY STAR home page.

See and hear about Intel's latest updates of Instantly Available technology efforts at the Fall '00 Intel Developer Forum Conference, August 22 through 24, in San Jose, California. Details and registration information is available at the Conference Web site.

If you are interested in PC consumer promotional opportunities around ENERGY STAR and Instantly Available, contact Nancy Sumrall, Instantly Available Program Manager,
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Author Bio

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